BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Proposed Changes in the Commission's Rules	)	ET Docket No. 03-137
Regarding Human Exposure to	)	
Radiofrequency Electromagnetic Fields	)	

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Telecommunications Industry Association ("TIA") hereby submits comments in response to the Notice of Proposed Rulemaking in the above-captioned proceeding.[1]

[1] *Notice of Proposed Rulemaking*, FCC 03-132 (released June 26, 2003) ("NPRM").

I. INTRODUCTION

TIA is the leading trade association representing the communications and information technology industry, with 700 member companies that manufacture or supply the products and services used in global communications. Among their numerous lines of business, TIA member companies design and produce radiofrequency ("RF") transmitters and facilities, an area in which the Federal Communications Commission ("Commission" or "FCC") is reevaluating its rules relating to compliance with its guidelines for human exposure to RF energy. As a result, TIA has substantial interest in current and future Commission decisions related to the scope of communications services and devices that should be required to comply with FCC RF exposure rules.

In its 1996 *Report and Order* and its 1997 *Second Memorandum Opinion and Order* in ET Docket 93-62,[2] the Commission established guidelines for evaluating the environmental effects of radiofrequency radiation. These guidelines include limits for Maximum Permissible Exposure ("MPE") to RF radiation, including limits for both whole-body and partial-body exposures, based on criteria published by the National Council on Radiation Protection and Measurements and by the American National Standards Institute/Institute of Electrical and Electronics Engineers, Inc. The *Report and Order* also modified the Commission's policy on categorical exclusions, which relieve certain radio services and transmitters from requirements for routine environmental evaluation for RF exposure. Since

adoption and implementation of these guidelines, the FCC has concluded that additional transmitters and devices can be categorically excluded from routine evaluation for RF compliance, that some transmitters and devices are inappropriately excluded, and that certain exclusion criteria can be harmonized to govern similar facilities in different services.

In the comments that follow, TIA urges the Commission to continue in its efforts to ensure that the public is appropriately protected from any potential adverse effects from RF exposure, while avoiding the creation of any unnecessary burdens in complying with the RF exposure rules. TIA supports the FCC efforts to revise and clarify the responsibilities of licensees and grantees in order to ensure compliance with the FCC RF exposure limits in a more practical, consistent and efficient manner.

II. DISCUSSION

A. Routine Evaluation and Categorical Exclusion of Transmitters, Facilities and Operations

The Commission's environmental rules identify particular categories of existing or proposed transmitting facilities for which licensees and applicants are required to conduct routine environmental evaluation to determine whether these facilities comply with its RF guidelines. All other transmitting facilities are "categorically excluded" from requirements for conducting such routine evaluations because the Commission has found

[2] *Report and Order*, ET Docket 93-62 (Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation), 11 FCC Rcd 15123 (1996); *Second Memorandum Opinion and Order and*

that they offer negligible potential for causing exposures in excess of its guidelines based on factors such as operating power and human accessibility.

TIA agrees with the FCC conclusion that the current environmental rules are inconsistent with regard to the treatment of accessibility or separation distance for certain fixed transmitting facilities. In some instances, transmitter powers and separation distances are specified and in others only power levels are specified. TIA believes that it is important to consider both total transmitter power and separation distance in the RF exposure requirements and exclusions for all transmitting antennas, including building-mounted antenna.

TIA agrees with the FCC's proposed changes to the compliance rules affecting transmitting facilities in the Multipoint Distribution Service (Subpart K of Part 21), the Cellular Radiotelephone Service (Subpart H of Part 22), the Paging and Radiotelephone Service (Subpart E of Part 22), the Personal Communications Services (Part 24), the Wireless Communications Service (Part 27), the Experimental, Auxiliary, and Special Broadcast and Other Program Distributional Services (Subpart I of Part 74), the Private Land Mobile Radio Services Paging Operations (Part 90), the Private Land Mobile Radio Services Specialized Mobile Radio (Part 90), the Local Multipoint Distribution Service (Subpart L of Part 101), the 24 GHz Service and Digital Electronic Message Service (Subpart G of Part 101), and terrestrial repeater stations in the Satellite Digital Audio Radio Service authorized under Part 25. Specifically, for these services, routine evaluation should be required for fixed transmitting facilities where the separation distance from publicly accessible areas is less than 3 meters, regardless of operating

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Notice of Proposed Rule Making, ET Docket 93-62 (WT Docket 97-192), 12 FCC Rcd 13494 (1997).

frequency or power, with the exception of very low power fixed transmitters as discussed below.

Routine evaluation should be required for facilities where the separation distance from publicly accessible areas is less than 10 meters and the transmitting power is 100 watts ERP or greater for services operating at frequencies below 1.5 GHz or 200 watts ERP or greater for services operating at frequencies at 1.5 GHz and above.

Finally, fixed transmitting facilities should be categorically excluded from routine evaluation if the separation distance to publicly accessible areas is 10 meters or greater.

TIA urges the FCC to allow the above proposed exclusions and to take the directivity of the antennas into account. We suggest that the effective transmitted output power (ERP or EIRP) should be calculated using the antenna gain in the considered direction.

For transmitters authorized under the Experimental Radio Service (Part 5) and under Subparts A, G, and L of Part 74, routine evaluation should be required if radiated power is 100 W ERP (164 W EIRP) or more *or* if members of the general public can approach the radiating structure of the antenna at a distance closer than 3 meters.

In those situations where routine evaluation is required or requested for box level transmitters (i.e. fixed station equipment such as base station transmitters where no antenna is inherently provided as part of the manufacturers list of equipment) the proper extent of the certification process routine evaluation must be consistent with, and limited to, the evaluation outlined in TIA Telecommunications Systems Bulletin 92 ("TSB-92").[3]

[3] TIA TSB-92, *Report on EME Evaluation for RF Cabinet Emissions Under FCC MPE Guidelines*, published August 1, 1998.

TIA notes the need for licensees to implement RF exposure safety programs and such programs must recognize the necessary differences that exist when discussing fixed stations as opposed to mobile/portable equipment.

These proposals will ensure that the Commission's RF exposure rules and categorical exclusions are more consistently applied across all service categories.

Very low power fixed transmitters, devices mounted in such a way that persons are normally not closer than 20 cm from any part of the radiating structure, should have a categorical exclusion threshold of 1.5 W ERP if operating at frequencies at or below 1.5 GHz and a categorical exclusion threshold of 3 W ERP if operating at frequencies above 1.5 GHz. We agree with the FCC conclusion that transmitters operating below these levels should not be subject to routine evaluation to determine compliance with RF exposure limits. Further, we think that the proposed power levels (1.5 and 3 W) are appropriate if the antenna gain in different direction may be used to calculate the ERP. We suggest that this rule also should be applied to directional antennas with higher ERP in the main beam (e.g. wall mounted antennas), in order to avoid unnecessary evaluations if there is no public access within 3 meters behind the antenna.

It should not be necessary to exercise the same level of concern and caution for very low-power transmitters as those with higher output power. The FCC should deal with these different classes of devices separately. Specifically, the FCC should adopt a Supplier's Declaration of Conformity ("SDoC") process for approval of very low-power transmitters, such as has been done in the European Union under their Radio and Telecommunications Terminal Equipment Directive ("R&TTE Directive 99/5/EC"), effective April 2000. Adopting the SDoC process would also go a long way to counter

those who would characterize the FCC's certification process as a de facto trade barrier when compared with the more relaxed requirements for wireless device approvals in Europe.

TIA has observed the potential for misunderstandings regarding the field levels generated by new wireless devices such as wireless local area networks ("WLAN") and the potential health effects on users and others exposed to their RF emissions. We have been advised that a number of companies are investigating the possibility of conducting a comprehensive measurement project involving multiple wireless devices to provide additional data on the RF fields present in public WLAN venues. The intent of this assessment is to alleviate any potential public misunderstandings on the nature of the RF emissions from these devices. TIA respectfully requests feedback on the Commission's possible involvement in such a study, and subsequently any inputs on the scope, process, and nature of the study, as well as any suggestions/recommendations on the appropriate mechanisms to publicly disseminate the results of the study.

B. Requirements for Evaluating SAR for Certain Section 15.247 Unlicensed Devices

Section 15.247 contains the rules governing the use of spread spectrum transmitters operating in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. These unlicensed Part 15 devices employ spread spectrum technologies that "spread" the energy over a wider bandwidth, thereby reducing the potential for interference, and may operate at higher power levels than some other Part 15 devices. Under current FCC rules, routine RF exposure evaluation of Specific Absorption Rate ("SAR") is not required for devices authorized under Section 15.247.

TIA agrees with the FCC proposal to require SAR evaluation of these "higher power" consumer devices that are authorized under Section 15.247, and designed for use within 20 cm of the body, if the maximum output power exceeds 100 mW. However, TIA urges the FCC to base output power on "maximum average (RMS) output power", not "maximum peak output power" as contemplated in this NPRM, since SAR is directly linked to the average power, and not the peak power.

C. RF Evaluation Requirements for Transmitter Modules

Modular RF emitters ("transmitter modules"), designed to be used in "host" products or in combination with other RF devices, are increasingly being designed for installation in a variety of consumer electronic products, either as add-on features by the manufacturer or as after-market accessories to be installed by the consumer. TIA believes that transmitter modules can be used in many different devices without subjecting these devices to new or additional RF exposure evaluations.

Accordingly, we agree with the FCC proposal to permit the authorization of transmitter modules where they comport with categorical exclusion requirements or where they have been measured and shown to comply with the RF guidelines and it can be shown that the use of the modular transmitter in additional "host" devices would not result in noncompliance. Moreover, the FCC should permit transmitters that have been successfully evaluated for compliance to be certified as a Part 15 transmitter module provided it can be shown that compliance can be maintained in any intended application of the transmitter.

We agree with the FCC that for radiotelephones, pagers, and other devices that are used in close proximity to the head or body, SAR evaluation should not be required subsequent to the addition of any modular transmitter that operates at or below 2 mW. If such modules cannot be used simultaneously, there should be no limit on the number of transmitters that can be added without compliance reevaluation.

It is in the public interest to facilitate and promote use of low-power wireless devices. Two additional important factors are reducing time to market and reducing consumer costs for these devices when these factors are not inconsistent with consumer safety. The FCC should bear these factors in mind when specifying regulatory testing of wireless devices.

Specifically, duplicate testing should not be necessary, and serves only to add cost and delay market introduction. The FCC will sometimes require that previously tested wireless devices with similar industrial design be re-tested when they are installed in different equipment. In most cases, such re-testing is unnecessary and only serves to add cost and delay product availability.

We also agree with the FCC proposal that modular transmitters operating at power levels above 2 mW in a hand-held phone, pager or similar device can be evaluated in combination with the host device. If the combination is demonstrated to be in compliance with the SAR limit, such a demonstration of compliance can then be applied to modules in similar host devices that have been tested and certified for similar configurations without any additional requirements.

D. Measurement of SAR from Multiple Transmitters

TIA believes that adding together the maximum SAR values of multiple antennas on a single device will, in many cases, largely overestimate the real SAR. We agree that this may be a simple way of showing compliance, and that it should be an accepted method of testing. However, we think that it is more accurate to add the SAR distributions for the different transmitters, in order to determine the real total maximum SAR, and that such an evaluation procedure should also be permitted in order to show compliance.

E. Reference to OET Bulletin 65

For purposes of evaluating compliance with the guidelines for localized exposure measured by SAR, the Commission's rules require that portable devices are to be tested or evaluated based on technically acceptable protocols, procedures and standards. Specific guidance on acceptable procedures is provided in a supplement to the FCC's OET Bulletin 65 ("*Supplement C*").[4] Supplement C provides general direction as to the procedures that are appropriate for analysis of SAR from wireless handsets. Supplement C also allows the applicants to use other methods and procedures based on sound engineering practice. TIA agrees with the FCC proposal to revise its rules so they no longer refer to IEEE standard C95.3-1991, which is significantly outdated. Rather, the FCC should include a general reference to the Institute of Electrical and Electronics Engineers ("IEEE"), which publishes RF measurement standards that are the de facto basis for FCC requirements. As SAR evaluation guidelines are refined by IEEE experts, they can be accommodated by, or adopted into, Supplement C.

[4] *Supplement C* to *OET Bulletin 65*, first edition (97-01) released August 25, 1997, revised edition (01-01) released June 29, 2001.

Replacement of the IEEE standard C95.3-1991 reference with a general reference to the "most recent version of Supplement C of OET Bulletin 65" would seem to endorse the ability of the Commission to modify evaluation requirements without consultation within the IEEE and it's scientific committee process. To date most manufacturers have experienced difficulty resulting from inconsistencies in the certification process because Supplement C provides limited direction. TIA strongly recommends that the FCC certification process should rely on international consensus standards. Supplement C should refer to such standards and also allow other acceptable procedures when the manufacturer demonstrates these are supported by sound engineering practice.

Additionally, the FCC requirements must be "transparent" in the sense that they be consistent and clear to all. Official interpretations of existing rules that have the effect of progressively increasing the difficulty or complexity of those rules do nothing to promote transparency, and should be discouraged.

F. Special Considerations for Occupational Use

The Commission's RF guidelines incorporate two tiers of exposure limits, one for the general public ("general population/uncontrolled" exposure) and another, less restrictive, tier of limits for workers ("occupational/controlled" exposures). The difference in the acceptable exposure levels is based on the premise that workers are aware of their exposure and have the knowledge and means to effectively control their exposure.

TIA strongly supports the Commission's interest in assuring that workers are properly aware and well informed about RF exposure. As discussed earlier in Section II

A (Discussion), TIA TSB-92 addresses the need for licensees to implement RF exposure safety programs for fixed station equipment/antenna sites. The Commission should note, however, that there are reasonable differences between "fixed stations" and "mobiles/portables" which needs to be addresses separately.

With regard to mobile and portable devices, the Commission must recognize that the scope of the information outlined in TIA Telecommunications Systems Bulletin 133 ("TSB-133")[5] is "adequate" written and/or verbal communications to the end user from a content perspective. The Commission must also specifically note a manufacturer's responsibility as far as making the user "fully aware" is limited to providing the TSB-133 information in the appropriate user manual/instruction booklet. The FCC must specifically note that the responsibility to relay the TSB-133 information to the ultimate end user is solely the responsibility of the employer.

The Commission should also state that the content of the TIA TSB-133 label is sufficient for complying with the FCC provisions. Furthermore, the FCC rules should state that a "screen flash" upon power up, which contains the same content as the TSB-133 label is also compliant with the FCC content and location requirements. Finally, in the event of a label being used, the FCC rules should state that label placement must be in "an easily viewable" location, and that placement in radio battery compartments, for the purpose of maintaining label integrity and legibility, is acceptable.

[5] TIA TSB-133, *Private Land Mobile Radio (FCC Part 90) Two Way Mobile and Portable Equipment RF Exposure (EME) Labeling, Product Manual, User Awareness, and Control Information to Meet FCC MPE/SAR Guidelines*, published June 2003.

G. Compliance Evaluation Based on SAR Limits

TIA supports the proposal that computational modeling be allowed. TIA believes that SAR assessments, in the form of measurement or computations, should be allowed, regardless of whether the equipment is considered "mobile" or "portable." Recognizing the MPE computational method may be unnecessarily conservative, TIA believes that SAR assessments, in light of current knowledge, more accurately reflect RF exposure.

In summary, TIA agrees with the FCC proposal to amend Section 1.1310 to reference the underlying whole-body and partial-body SAR values for exposure criteria, and to allow for evaluation of SAR in lieu of power density or field strength evaluation for demonstrating compliance.

H. Transition Period

The new rules should become effective upon their publication in the Federal Register and a manufacturer should be allowed to use the new rules immediately. However, a transition period of 12 months from the date of publication of the new rules in the Federal Register should be provided until compliance is mandatory.

III. CONCLUSION

TIA member companies design, develop and manufacture communications equipment, including equipment used as part of systems that are or may be affected by the Commission's oversight authority. TIA therefore has a direct and substantial interest in the RF exposure compliance activities of the Commission, including the subject matter of this NPRM. TIA requests that the Commission take into consideration the views expressed above, which support compliance with the FCC RF exposure limits in a more practical, consistent and efficient manner.

Respectfully submitted,

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December 8, 2003